Selected Abstracts from the May Issue of the European Journal of Vascular and Endovascular Surgery

Jean-Baptiste Ricco, MD, PhD, Editor-in-Chief, and A. Ross Naylor, MBChB, MD, FRCS, Senior Editor

Comparison of Open and Endovascular Treatments of Post-carotid Endarterectomy Restenosis

Dorigo W., Pulli R., Fargion A., Pratesi G., Angiletta D., Aletto I., Alessi Innocenti A., Pratesi C. Eur J Vasc Endovasc Surg 2013;45:437-42.

Aim of the study: To compare early and long term results of open and endovascular treatment of post-carotid endarterectomy (CEA) restenosis in a single centre experience.

Methods: From January 2005 to December 2011, ninety-nine consecutive interventions for primary severe post-CEA restenosis were performed: in 41 cases (41%, Group 1) open repair was carried out, whereas the remaining 58 patients (59%, group 2) underwent an endovascular treatment. Data concerning these interventions were prospectively collected in a dedicated database containing main pre, intra and postoperative variables.

Early results in terms of 30-day stroke and death rates were analysed and compared with χ^2 test.

Follow-up results were analysed with Kaplan Meier curves and compared with log-rank test.

Results: Mean time from primary CEA was 75 months in group 1 and 42 months in group 2 ($P = 0.002$; 95% CI 12–52). There were no differences between the two groups in terms of demographic data, comorbidities, risk factors for atherosclerosis, preoperative clinical status or degree of stenosis on the operated side. In group 1 interventions consisted of redo-CEA in 37 patients and of carotid bypass in the remaining 4; all the patients in group 2 underwent stent placement with cerebral protection device. No perioperative deaths and ipsilateral neurological events occurred in both groups. One patient in group 1 suffered from a non-fatal acute myocardial infarction. Other six patients (14.5%) experienced transient cranial nerve injuries, with complete regression at 1-month follow-up; two patients had postoperative dysphagia due to neck haematoma, which was medically managed. Neither access-related nor systemic complications were recorded in group 2.

Follow-up was available in 98% of the patients with a median duration of 24 months (range 3–72).

There were no differences in terms of 4-year estimated survival and stroke-free survival, whereas patients in group 1 were more likely to develop severe (>80%) secondary restenosis (28.3% and 6.5%, respectively, $P = 0.01$, log rank 6.3) and to undergo secondary reintervention (22% and 11%, respectively $P = 0.01$, log rank 6).

Conclusions: Despite the selection limits and bias of this study, in our experience open and endovascular surgery provided similar perioperative results in the management of post-CEA restenosis. Long term outcomes are similar, too, despite a slight increase in secondary restenosis and recurrent reinterventions among open surgery patients, warranting further studies and analysis.

Iliac Conduits for Endovascular Repair of Aortic Pathologies

Tsilimparis N., Dayama A., Perez S., Ricotta J.J. Eur J Vasc Endovasc Surg 2013;45:443-8.

Objectives: Challenging iliac access during thoracic endovascular aortic repair (TEVAR) is associated with a higher risk of access site complications such as injury or rupture of the iliac vessels. As a result, the use of iliac conduits is frequently used to facilitate access during TEVAR. This report evaluates the effect of iliac conduits on TEVAR outcomes.

Methods: The 2005–2010 American College of Surgeons Surgical Quality Improvement Program database was queried to identify vascular patients undergoing elective TEVAR. Patients without conduit (Group A) were compared to patients who underwent TEVAR with conduit (Group B).

Results: We identified 1037 patients (90%) in Group A (69 ± 12.7 years, 42% female) and 117 patients (10%) in Group B (70 ± 12.6 years, 68% female). Women received conduits more often than men (Male:5.8%, Female:15.7%, $P < 0.001$). There was no significant difference in the rate of non-surgical (A:19%, B:25%, $P = 0.121$), pulmonary (A:11%, B:16%, $P = 0.115$), renal (A:3.1%, B:1.7%, $P = 0.4$) and cardiovascular complications (A:8%, B:12%, $P = 0.143$) between groups. However, any complication (A:24%, B:33%, $P = 0.025$), surgical complications (A:10%, B:16%, $P = 0.035$) and mortality (A:4.5%, B:12%, $P = 0.001$) were significantly higher in Group B. In multivariate analysis, use of conduit was associated with a 3.8 times higher risk of death compared with no conduit after controlling for confounders. Length of in-hospital stay was similar for both groups (A:6.6 ± 8.8, B:7.6 ± 8 days, $P = 0.247$). The use of conduits had a declining rate over time from 17.9% in 2006 down to 6.5% in 2010.

Conclusions: Female patients more frequently require iliac conduits during TEVAR compared to men. Conduits were associated with a higher rate of surgical complications and mortality. The incidence of conduit use has decreased threefold in the last five years. Safer access for TEVAR by use of a conduit should not be abandoned based on these results, but there should be a heightened awareness for the higher rate of mortality in these patients.

Volume Estimation of the Aortic Sac after EVAR Using 3-D Ultrasound – A Novel, Accurate and Promising Technique

Bredahl K., Long A., Taudorf M., Lönn L., Rouet L., Ardon R., Sillesen H., Eiberg J.P. Eur J Vasc Endovasc Surg 2013;45:450-5.

Objectives: Volume estimation is more sensitive than diameter measurement for detection of aneurysm growth after endovascular aneurysm repair (EVAR), but this has only been confirmed on three-dimensional, reconstructed computer tomography (3-D CT). The potential of 3-D ultrasound (3-D US) for volume estimation in EVAR surveillance is unknown.

Design: Prospective validation study comparing 3-D US with 3-D CT, using 3-D CT as the gold standard.

Materials and methods: From August 2011 to March 2012, 93 consecutive EVAR patients were enrolled and examined with both 3-D US and CT angiography (CTA). Image data were analysed in a mutual blinded setup using a 3-D interactive segmentation technique.

Results: The technical success rate of 3D-US was 98% (91/93). In 91 EVAR patients (F/M; 10/81) eligible for further analysis, the mean maximum volume (SD) was 126 (58) ml using 3-D US and 128 (58) ml using 3-D CT. The mean difference was 1 ml (0.4%) and the limits of agreement were −14 to 16 ml (−11; 12%).

Conclusions: Volume estimation of the aortic sac after EVAR using 3-D US is a feasible and accurate method using 3-D CT as the gold standard.

Endograft Repair of Complicated Acute Type B Aortic Dissections

Sobocinski J., Dias N.V., Berger L., Midulla M., Hertault A., Sonesson B., Resch T., Haulon S. Eur J Vasc Endovasc Surg 2013;45:468-74.

Objectives: This study aims to assess patient outcomes and aortic remodelling following coverage of the proximal entry tear with an endograft in complicated acute type B aortic dissections (caTBADs).

Material and methods: All patients with caTBAD treated with a thoracic endograft in three high-volume vascular centres were retrospectively studied. Inclusion criteria were branch-vessel malperfusion, impending or overt aortic rupture, maximal aortic diameter ≥40 mm and persistent pain or uncontrolled hypertension despite maximum pharmacological treatment. Postoperative aortic remodelling was evaluated using computed tomography angiography (CTA) on a three-dimensional (3D) imaging workstation.

Results: A total of 52 patients (71% male, median age 65 years) were included in the study. Median inclusion criteria per patient were 2 (range 1–4). Branch-vessel malperfusion was diagnosed in 42% and impending aortic rupture in 33% of 52 patients. Median follow-up was 25 months (range 2–109 months). The 30-day mortality rate was 9.6% (5/52); patient survival according to the Kaplan–Meier method was 90.4% at 12 months and 87.6% at 24 months. Secondary interventions were performed in seven patients a median of 3 days after the initial procedure (range 2–865). Imaging follow-up at 12 months was performed in 36 patients (69%): 75% presented stable or shrinking (>5 mm) maximal aortic diameters and 86% had a completely thrombosed false lumen (vs. 5% before initial procedure) at thoracic level.

Conclusions: Endograft treatment of complicated caTBAD is associated with favourable early outcomes and possibly promotes aortic remodelling in the majority of patients.